In the Claims:

1. (Currently Amended) A system for transporting voice, video and data signals in the local access loop between a central office location and a plurality of subscribers, comprising:

optical video distribution circuitry for combining analog television signals occupying a first bandwidth and digital television signals occupying a second bandwidth that is at a higher frequency than the first bandwidth into combined optical video signals at a first wavelength;

telephony/data distribution circuitry for combining telephony packet signals and data packet signals into ~~combined~~ merged optical telephony/data packet signals at a second wavelength, wherein each of the merged optical telephony/data packet signals has a common format and includes an address identifier that uniquely associates the telephony or data packet signals with a particular subscriber;

optical multiplexing circuitry for combining the combined optical video signals at the first wavelength with the combined optical telephony/data packet signals at the second wavelength to form downstream multiplexed optical signals carrying the analog and digital television signals at the first wavelength and the telephony and data packet signals at the second wavelength;

a passive optical network for transporting the downstream multiplexed optical signals to the subscribers; and

a plurality of home network units coupled to the passive optical network for receiving the downstream multiplexed optical signals, and for demultiplexing and converting the downstream multiplexed optical signals into a plurality of electrical signals corresponding to the analog television signals, the digital television signals, the telephony packet signals, and the data packet

signals, wherein each home network unit is associated with an address identifier for a particular subscriber so that the home network unit can determine which of the transported telephony and data packet signals are directed to the particular subscriber.

~~wherein the home network units comprise circuitry for transmitting combined optical telephony/data packet signals over the passive optical network to the central office at the second wavelength, the circuitry for transmitting including an echo cancellation circuit for monitoring echo signals at the second wavelength and for injecting an echo cancellation signal that compensates for the monitored echo signals~~.

2. (Previously Presented) The system of claim 1, wherein the optical video distribution circuitry comprises:

an optical multiplexer for combining the analog television signals and the digital television signals into the combined optical video signals; and

a first optical booster stage for amplifying the combined optical video signals.

3. (Previously Presented) The system of claim 1, wherein the optical video distribution circuitry further comprises:

a splitter coupled to the output of the first optical booster stage; and

a plurality of additional optical booster stages coupled to the output of the splitter for further amplifying the combined optical video signals.

4. (Original) The system of claim 2, wherein the first optical booster stage is an Erbium-doped fiber amplifier.

5. (Original) The system of claim 3, wherein at least one of the plurality of additional optical booster stages are Erbium-doped fiber amplifiers.

6. (Original) The system of claim 1, wherein the first wavelength is approximately 1550 nanometers.

7. (Previously Presented) The system of claim 1, wherein the analog television signals occupy a bandwidth of approximately 50 to 750 megahertz.

8. (Previously Presented) The system of claim 1, wherein the digital television signals occupy a bandwidth of approximately 950 to 2050 megahertz.

9. (Currently Amended) The system of claim 1, wherein the telephony/data distribution circuitry comprises:

a telephony interface platform for interfacing with a telephone switch;

a data switch for interfacing with a source of data packet signals; and

a plurality of optical interface units coupled to the telephony interface platform and the data switch for converting the telephony signals into telephony packet signals, for multiplexing and demultiplexing the telephony packet signals with the data packet signals, and for converting

the telephony and data packet signals to and from the ~~combined~~ merged optical telephony/data packet signals at the second wavelength.

10. (Original) The system of claim 9, further comprising an element management system coupled to the telephony interface platform.

11. (Original) The system of claim 9, wherein the digital telephone switch is coupled to the telephony interface platform via a plurality of DS-1 telephony signals.

12. (Original) The system of claim 9, wherein the data switch is an Ethernet switch.

13. (Original) The system of claim 12, wherein the Ethernet switch is coupled to the plurality of optical interface units via a plurality of 100 Base-T connections.

14. (Original) The system of claim 9, wherein the passive optical network includes a plurality of transport fibers, and wherein each optical interface unit is coupled to four or more of the transport fibers.

15. (Original) The system of claim 9, wherein the second wavelength is 1310 nanometers.

16. (Original) The system of claim 9, wherein the data switch is coupled to a PPPOE service gateway.

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Currently Amended) The system of claim 1, wherein the telephony packet signals and the data packet signals are formatted as ~~both~~ Ethernet packet signals.

21. (Previously Presented) The system of claim 20, further comprising an Ethernet ID field within each of the Ethernet packet signals for identifying whether a particular packet is a telephony packet signal or a data packet signal.

22. (Currently Amended) The system of claim 21, wherein the address identifier associated with each home network unit ~~has~~ is an ~~associated~~ Ethernet MAC address for routing telephony and data packet signals from the central office to the proper home network unit.

23. (Previously Presented) The system of claim 21, wherein each optical interface unit has an associated Ethernet MAC address for routing telephony and data packet signals from the home network units to the proper optical interface unit.

24. (Original) The system of claim 1, wherein the passive optical network comprises:

a plurality of transport fibers coupled to the optical multiplexing circuitry;

a plurality of drop fibers coupled to the home network units, wherein each home network unit is coupled to one drop fiber; and

a plurality of passive optical splitters coupled between the transport fibers and the drop fibers.

25. (Original) The system of claim 24, wherein the passive optical splitters are at least 4 to 1 splitters.

26. (Original) The system of claim 24 wherein the length of the transport fibers is less than approximately 33,000 feet.

27. (Original) The system of claim 24, wherein the length of the drop fibers is less than approximately 3,300 feet.

28. (Original) The system of claim 24, wherein the passive optical splitters are mechanically coupled to the transport fibers via fusion splicing.

29. (Original) The system of claim 1, wherein the home network units include connections for servicing a plurality of telephones, analog television equipment, digital television equipment, and at least one computer.

30. (Previously Presented) The system of claim 29, wherein the connection from the home network unit to the at least one computer is an Ethernet data connection.

31. (Original) The system of claim 30, wherein the Ethernet data connection is a 10Base-T connection.

Claims 32-43 (Cancelled).

44. (New) The system of claim 1, wherein the home network units include circuitry for transmitting merged optical telephony/data packet signals over the passive optical network to the central office at the second wavelength.

45. (New) The system of claim 44, wherein the circuitry for transmitting includes an echo cancellation circuit for monitoring echo signals at the second wavelength and for injecting an echo cancellation signal that compensates for the monitored echo signals.

46. (New) The system of claim 44, wherein the home network units and the telephony/data distribution circuitry each prioritize the transmission of pending telephony packet signals over pending data packet signals in order to reduce the latency of telephony packet signal transport over the passive optical network.

47. (New) The system of claim 44, wherein the home network units provide circuitry that pauses the transmission of a pending data packet signal if a telephony packet signal is ready for transmission at the home network unit.

48. (New) The system of claim 1, wherein the telephony/data distribution circuitry time division multiplexes telephony packet signals and data packet signals for each of a plurality of subscribers to form a merged optical telephony/data packet signal, wherein the merged optical telephony/data packet signal includes both telephony packet signals and data packet signals for the plurality of subscribers.

49. (New) The system of claim 48, wherein each of the merged optical telephony/data packet signals are coupled to a plurality of home network units via one of a plurality of distribution fibers which form part of the passive optical network, each home network unit of the plurality of home network units being coupled to the one distribution fiber via a drop fiber.

50. (New) The system of claim 49, wherein each of the plurality of home network units transmit merged optical telephony/data packet signals over the one distribution fiber back to the central office via a defined upstream time slot assigned to each of the plurality of home network units.

51. (New) The system of claim 49, wherein each of the home network units of the plurality of home network units includes circuitry for detecting and selecting a particular upstream time slot for communicating back to the central office.

52. (New) The system of claim 1, wherein at least one of the home network units is coupled to a subscriber data network having a plurality of addressable computing devices, and wherein the home network unit includes circuitry for detecting the network addresses of the subscriber's computing devices and for formatting received data packet signals according to the detected network addresses in order to properly route the received data packet signals to the appropriate computing device on the subscriber's data network.